



Report on Mercury and Products that Contain Mercury

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October 2004

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I. INTRODUCTION

This report is submitted in accordance with the requirements of the Environment Article, Title 6, Subtitle 9, Annotated Code of Maryland (full text of the Act can be found in Appendix D of this report). In Subtitle 9, Part II. “Mercury and Products that Contain Mercury Act,” the General Assembly found that:

- mercury is a persistent and toxic pollutant that bioaccumulates in the environment;
- consumption of mercury-contaminated fish poses a significant health threat;
- combustion of municipal and other solid waste is a source of mercury pollution;
- both industry and government are working to reduce the content of mercury in products and to control the release of mercury into the environment;
- accidental mercury spills, breakages, and releases have occurred at schools in the United States, exposing students, teachers, and administrators to mercury emission; and
- removal of mercury and mercury containing products from the waste stream prior to combustion or disposal is an effective way to reduce mercury pollution.

The law aims to address mercury pollution in Maryland by:

- prohibiting the sale or provision of mercury-containing fever thermometers, except with a prescription;
- prohibiting the use of mercury in primary and secondary schools, except in schools engaged in vocational training;
- requiring the Maryland Department of the Environment (MDE) to provide outreach assistance to schools and implement an outreach program relating to hazards of mercury and voluntary efforts that individuals, institutions, and businesses can undertake to help further reduce mercury in the environment; and
- requiring MDE to work with neighboring states and regional organizations in the mid-Atlantic and northeastern United States on developing outreach, assistance, and education programs;
- in 2003-2004 Session the Act was amended to include requirements for labeling products containing mercury as well as for reclamation of mercury added fluorescent lamps.

The 2001 editor’s note in Section 2, ch. 639 of the Act requires MDE to report to the Governor, the Senate Education, Health, and the Environmental Affairs Committee and the House Environmental Matters Committee regarding:

- the effectiveness of the Act;
- legislation enacted in other states that require labeling of mercury and products that contain mercury and to specifically regulate mercury and products containing mercury in the waste stream; and

- recommendations for any changes to the law to improve efforts to reduce the use of mercury and the incidence of mercury in the waste stream.

II. REPORT FINDINGS

In the recent years Maryland has made significant progress in increasing awareness of mercury issues and reducing the potential for mercury to escape to the environment. This has been done through developing and distributing outreach materials, cooperating with various institutions to facilitate and encourage removal of mercury and products that contain mercury from schools and households.

1. MERCURY SOURCES IN MARYLAND

This section summarizes the major non-natural mercury sources in Maryland, which are based on the latest available Toxic Release Inventory (TRI) data (US EPA, 2002), US EPA Mercury Study Report to Congress (US EPA, 1997a), and Maryland specific monitoring data. Since mercury emissions can be transported over long distances, this data does not necessarily reflect the direct local impact of local mercury emissions. Instead, it provides an estimate of the magnitude of local emissions, which are either deposited locally or are transported to other geographical locations.

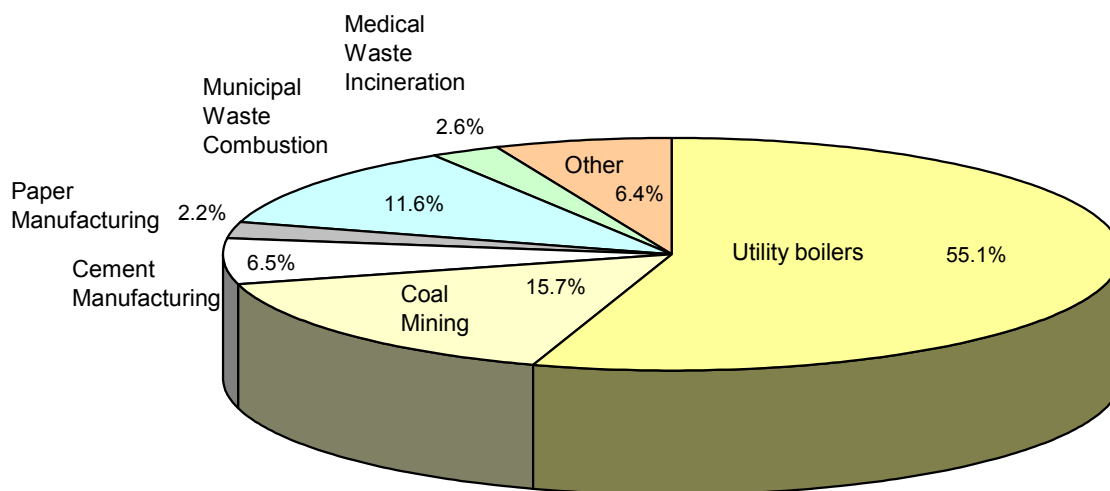
A. NON-NATURAL MERCURY SOURCES

The non-natural mercury emission sources are often divided into the following two groups:

- **Intentional use releases** which are emitted in the process of:
 - producing or supplying mercury,
 - manufacturing (when mercury is an essential component of the product or the production process),
 - waste disposal of mercury or products containing mercury (e.g. waste incineration, release with waste waters, landfilling).
- **Incidental releases** which are emitted in the process of:
 - manufacturing (raw materials contain mercury, but mercury is not an essential component of the product or the production process),
 - energy production (e.g. coal burning).

In 2002 incidental mercury releases were the largest sources of onsite mercury releases in Maryland (79.5%). These included releases from electrical utilities (55.1%), coal mines (15.7%), and cement (6.5%) and paper (2.2%) manufacturing facilities. At the same time, intentional mercury uses were responsible for another 20.5% of mercury onsite emissions. Intentional use sources incorporated in this calculation include municipal (11.6%) and medical (2.2%) waste incineration as well as other (6.4%) much harder to quantify sources such as residential boiler emissions, lamp breakage, landfills, and dental and laboratory discharges.

Figure 1: 2002 Onsite Mercury Release Sources in Maryland (3,475 lbs/year)



Data Source: TRI 2002 Data - Maryland Onsite Mercury Releases report (US EPA, 2002), US EPA Mercury Study Report to Congress (US EPA, 1997a), Maryland specific 2002 monitoring data.

From the point of view of the Mercury and Products that Contain Mercury Act, the amount of mercury entering the municipal and medical solid waste streams is of primary interest. In 2002, as demonstrated in Figure 1, municipal and medical waste emissions together were responsible for 14.2% of Maryland onsite mercury releases.

Mercury enters municipal and medical waste incinerators when individuals or institutions dispose of mercury or products containing mercury such as batteries, fluorescent light bulbs, thermometers, thermostats, light switches, and dental fillings as well as older paints and pesticides.¹ With respect to medical waste in Maryland, currently some medical incinerators operate wet scrubbers, which may provide reduction in mercury emissions, while hospitals rely on reducing mercury in the waste stream by eliminating purchase of mercury containing products wherever possible.

B. MAJOR MERCURY SOURCES ORIGINATING FROM PRODUCTS CONTAINING MERCURY

Since 2001 states such as Connecticut, Illinois, Maine, New Hampshire, and Rhode Island passed legislation requiring manufacturers of products containing mercury to notify the state of the amount of mercury used and the type of products produced. Availability of such information is needed in order to quantify the total amount of

¹ Mercury is no longer used in paints and pesticides in the US.

mercury released from products. Since at the moment such data is not available for Maryland, this report provides a summary of major mercury sources originating from mercury containing products, without quantifying the total annual releases from such sources.

i. Batteries

According to US EPA (1997a), in the late 1980s batteries were the most significant contributors of mercury to the municipal waste stream. Since then, due to industry initiatives as well as federal and state laws requiring elimination of mercury from alkaline and mercuric-oxide batteries, the amount of mercury in batteries has changed considerably. Nevertheless, even though manufacturers no longer add mercury to alkaline batteries, these still include traces of mercury, which are present in other components of these products. Moreover, silver-oxide and zinc-air button cell batteries, which are presently available on the market, continue to include mercury. This, however, might soon change, as recently Sony announced that starting in 2005 the company would begin sale of mercury free silver-oxide button cell batteries. Availability of such products will further help reduce mercury release from battery sources to the environment. In the meantime, however, separation of mercury containing batteries from the waste stream remains an important measure for minimizing the potential of releasing mercury to the surrounding environment.

Table 1: Mercury Content in Common Products

Product	Mercury Content
Laboratory thermometer	3.0 g
Thermostat	3.0 g
Fever Thermometer	0.5 g
Auto Switch	0.6-1.0 g
Fluorescent light bulbs:	
tubes	4-50 mg
compact	4-8 mg
High Intensity Discharge	20-250 mg
Button cell batteries	25 mg
Alkaline batteries	1-5ppm

Data Source: Oregon Department of Environmental Quality, 2003.

ii. Fluorescent and High Intensity Discharge Lamps (HID)

Because of their energy efficiency characteristics, the usage of fluorescent and HID lamps is especially desirable. Usage of fluorescent and HID lamps, as opposed to incandescent lamps, reduces the amount of fossil fuels burned and thus, the amount of pollutants emitted during electricity generation. However, even though mercury use in fluorescent light production has been decreasing over time, mercury is still a critical component needed for these lamps to operate properly. According to the National

Electrical Manufacturers Association (NEMA, 2001) an average four-foot fluorescent lamp contains around 11.6 mg of mercury. Thus, proper disposal of these products is again essential in ensuring that most of the mercury contained within these products is kept out of the environment.

iii. Thermostats

Most thermostats contain around 3 grams of mercury. They are used for temperature control in such devices as ovens, clothes dryers, water heaters, furnaces, space heaters, and air conditioners. Mercury contained in the switches of these thermostats could be released to the environment when individuals update these devices and discard the old components. It could also be released when old buildings are torn down. Alternative mercury-free thermostats are already available, and some industries are taking advantage of these products while phasing out mercury containing thermostats. Outreach and availability of collection sites is essential to ensure that mercury in thermostats is managed properly.

iv. Thermometers

A typical fever thermometer contains about 0.5 grams of mercury while laboratory thermometers contain up to 3 grams (US EPA, 1997c). Such instruments are vulnerable to breakage and can be the source of contamination of households and school facilities. In order to minimize release of mercury to the environment, thermometers should not be discarded with municipal or medical waste, but should be separated and recycled. As mercury-free alternatives are widely available, Maryland and a number of other states prohibit the sale of mercury fever thermometers except by prescription. In this situation, the main challenge becomes ensuring that older thermometers are collected and recycled.

v. Vehicle Switches

A mercury switch used for vehicle lighting contains about 1g of mercury. As of late 2002 many automakers no longer include mercury switches in new vehicles. However, vehicles produced prior to 2002 might still contain such switches. As a result they become a source of mercury emissions when scrapped at the end of their useful life. Consequently, in order to minimize the amount of mercury released to the environment, mercury switches should be removed prior to scrapping.

vi. Dental Amalgam

Mercury is an essential component of dental amalgam – commonly used in silver fillings. The Western Lake Superior Sanitary District has estimated that each dentist emits about 0.1 grams of mercury per day (US EPA, 1997b). Such releases take place during the placement or replacement of amalgam fillings. There are a number of steps dentists can take to reduce the amount of mercury entering waterways and waste streams:

- separate and recycle or safely dispose of the waste,
- switch from the use of bulk amalgam alloy to pre-capsulated amalgam,

- use alternatives to mercury-amalgam fillings, while still separating waste to capture old fillings.

2. EFFECTIVENESS OF THE ACT

Since the passage of the Mercury and Products that Contain Mercury Act, MDE has been:

- working to comply with outreach requirements of the law,
- establishing collaborative relationships with other institutions working on mercury reduction, and
- planning to meet possible future requirements of the law.

In this way, the law has been effective in compelling MDE to develop informational materials on the hazards of mercury and design programs to encourage voluntary efforts of Marylanders to reduce mercury as well as in increasing awareness of mercury and providing information relating to mercury spills.

Nevertheless, mercury spills still occur regularly in Maryland. Since October 2003 MDE Emergency Response Division was involved in 28 responses concerning mercury spills in residential dwellings, schools, and governmental and commercial facilities. This indicates that outreach and educational efforts need to continue; first to limit the number of spills, and secondly, to make sure that individuals involved in a spill follow proper clean up procedures.

A. OUTREACH EFFORTS

Fact sheets concerning mercury are posted on MDE's website (URL: www.mde.state.md.us). The fact sheets cover the following topics:

- general mercury information,
- addresses of mercury drop-off locations,
- mercury-free alternatives,
- mercury spill cleanup information,
- information about mercury spill kit vendors, and
- fish consumption advisory.

Website analysis indicates that on average 1,600 people per month look up mercury information on MDE's website, demonstrating that demand for such information exists. Examples of informational material can be found in Appendix B of this report.

Besides publishing informational materials relating to mercury, MDE also participates in various outreach events providing individuals and businesses with information about mercury. The following is a list of the most recent public outreach events during which information about mercury was made available to the public.

Table 2: MDE 2003-2004 Mercury Outreach Events

Date	Description of the Event	Attendance
7/11/03	Free Friday Flicks - Fox/WB TV sponsored event held in Anne Arundel County. Information was given on mercury reduction, electronics recycling, household hazardous waste, reuse, recycling and buy recycled. Mercury-free thermometer cards were given out.	Overall attendance: 6,000; around 1,000 people visited the booth
3/22/04	Baltimore Green Week - A Green Town Hall Meeting and Exhibition open to the public. Exhibitors were from local community organizations, small businesses and government to educate on the "green market and building". MDE gave out information on recycling, mercury, hazardous household waste, and brownfields.	250
4/25/04	Queen Anne's County Earth Day Celebration - A School cleanup beautification program, electronics recycling and household hazardous waste collection. Exhibit that highlighted electronics recycling, recycled content products, mercury and household hazardous waste. Recycling promotional items such as activity books, recycling tattoos, aluminum rulers and mercury free thermometers were given out to the students.	300
5/1/04	Bel Air Edison Spring Fest - Exhibit and booth was set up to distribute information on mercury, electronics, illegal dumping, recycling, scrap tire, lead and household hazardous waste. An interactive activity was set up to teach children about recycling and reuse - recycled bottle planter with seeds.	1,000
5/27/04	Maryland Recyclers Coalition Conference – MDE had a booth to highlight the new legislation passed on electronics recycling. Mercury-free thermometer cards were distributed and general recycling information was handed out.	100
Ongoing	MDE Emergency Response Division continues to provide mercury specific response training to firefighters throughout the State.	280 firefighters

B. COLLABORATIVE EFFORTS

MDE has collaborated with many organizations to fulfill the Mercury and Products that Contain Mercury Act mandates. Collaborations have been useful in ensuring that more Marylanders are aware of the hazards of mercury and the requirements of legislation concerning mercury.

i. Mercury in Schools

The project to remove mercury containing devices and laboratory chemicals from Maryland public and private schools has relied upon the collaborative efforts among Maryland Environmental Service (MES), Maryland State Department of Education (MSDE), the Children's Environmental Health and Protection Advisory Council (CEHPAC), and MDE. In 2003, MDE assisted MSDE in estimating the mercury present in Maryland schools. The survey determined that 795 schools reported having mercury, mercury-containing devices, or mercury compounds on their premises.

MES used the survey results to design and conduct an efficient collection effort to remove mercury from Maryland schools. All of Maryland's public school systems reported that 100% of their schools have either participated in the MES collection or used other services to remove mercury from their facilities. Among private schools, 37 schools participated in the MES collection. During this project, MES removed 349 pounds of liquid mercury, 145 pounds of mercury compounds, and 6,845 mercury containing devices such as thermometers, sphygmomanometers, and barometers from schools across Maryland.

ii. Mercury in Hospitals

MDE is continuing its work with the Maryland Hospital Association and the non-profit group Health Care Without Harm to encourage voluntary participation in the Hospitals for a Healthy Environment (H2E) campaign. This Campaign is the result of a Memorandum of Understanding between the US Environmental Protection Agency (US EPA) and the American Hospital Association (AHA) to eliminate mercury waste by 2005 and to reduce total waste by 33 percent by 2002, and by 50 percent by 2010.

Sixteen organizations in Maryland have joined H2E and pledged to work toward its goals. These include:

- Civista Medical Center,
- Deborah Morris & Associates,
- Dorchester General Hospital,
- Kaiser Permanente Mid-Atlantic States,
- Malcolm Grow Medical Center at Andrews Air Force Base
- Memorial Hospital at Easton,
- Montgomery General Hospital,
- National Naval Medical Center,
- Patient First - Bel Air
- Patient First - Green Spring
- Patient First - Laurel
- Patient First - Owings Mills
- Patient First - Perry Hall
- St. Joseph Medical Center,
- Warren G. Magnuson Clinical Center, and
- Washington Adventist Hospital.

Also, MDE has signed up as a Hospital for a Healthy Environment Champion for Change and has agreed to assist health care facilities in achieving the national goals as well as to lead by example at MDE facilities. As part of this effort, MDE along with the U.S. Environmental Protection Agency and the Maryland Hospitals Association sponsored a day-long workshop on the Minimization and Management of Hazardous Wastes at Healthcare Facilities. Over fifty environmental managers from Maryland hospitals attended the conference and indicated a strong interest in meeting regularly on environmental issues including the elimination of mercury.

iii. Mercury in Dental Offices

Dental amalgam is used by many dentists in Maryland. Currently, dentists dispose of this mercury amalgam waste in the trash or in medical waste bags which are then either incinerated or landfilled. In this situation, implementing best management practices for mercury amalgam could be instrumental in reducing air deposition of mercury. In addition, a more efficient collection of mercury amalgam and bulk mercury by dental offices could eliminate mercury discharges into wastewater treatment plants, their receiving streams as well as reduce the contamination of biosolids and landfills. MDE is investigating various opportunities to collect and recycle dental amalgam and bulk mercury, including reduced cost mercury mailers, cooperative agreements with dental amalgam distributors, and activities during household hazardous waste collection days. Another potential collection point is at the annual Chesapeake Dental Conference. Once these collection points have been established by MDE on a pilot basis, private collectors could utilize these points taking over the initiative of collecting mercury waste from dental offices in Maryland.

In the past years MDE has established a relationship with the Maryland State Dental Association (MSDA) and jointly developed a brochure on Best Management Practices for Dental Amalgam. In 2004 this brochure was distributed by the Maryland State Board of Dental Examiners to all licensed dentists in Maryland. A copy of this brochure can be found in Appendix B of this report. In addition to the brochure, MDE and MSDA put together a PowerPoint presentation with greater detail on how dental offices can more efficiently collect and dispose of dental amalgam. On September 18, 2004 MDE held a mercury collection event at the Chesapeake Dental Conference. The main purpose of this effort was to collect bulk mercury and dental amalgam as well as to communicate with 1600 dental professionals attending the conference. As such exhibits and collection methods have proven to be successful MDE is planning to participate in the next year's Chesapeake Dental Conference.

Apart from working with MSDA, MDE also cooperates with publicly owned treatment works (POTWs) to inform them about potential challenges posed by mercury discharged into their wastewater collection systems. MDE and POTWs are working together to develop programs that can be implemented to reduce mercury discharges to the environment. MDE prefers a voluntary approach until more data is collected. Presently, MDE is encouraging POTWs to support MDE's education activities on best management practices for dental amalgam.

iv. Thermometer Collections

Since the passing of the Mercury and Products that Contain Mercury Act, MDE has sought out assistance from local governments and non-governmental organizations to help increase Marylanders' voluntary actions to reduce mercury pollution in their environment. Table 3 (below) lists mercury collection locations throughout Maryland along with the amount of mercury containing products collected at various drop-off locations between October 2002 and October 2004.

Table 3: Mercury Drop-off Centers Collection Data – October 2002 - October 2004

Total Items Collected:	
1,921 Fever Thermometers	9 Blood Pressure Cuffs
55 Lab Thermometers	6 Mercury Switches
25 Thermostat Vials	34.5 lbs Liquid Mercury

FACILITY	LOCATION	AMOUNT COLLECTED (lbs)
Allegany County Health Department	P.O. Box 1745 Willowbrook Road Cumberland, MD 21501	0.66
Calvert County Solid Waste Facility	Appeal Landfill Sweet Water Road Lusby, MD 20657	15.82
Carroll County Health Department	290 South Center Street P.O. Box 845 Westminster, MD 21158	3.35
Cecil County Health Department	401 Bow Street Elkton, MD 21921	0.20
Charles Co. Department of Public Facilities	1001 Radio Station Rd Laplata MD 20646	0.28
Dorchester Co. Health Department Family Preventative Health Services	503 B Muir Street Cambridge, MD 21613	0.12
Garrett County Health Department	1025 Memorial Drive Oakland, MD 21550	1.32
Harford County Department of Public Works	Office of Recycling 3241 Scarboro Road Street, MD	3.00
Howard County Health Department – 5 locations	Columbia (2), Ellicott City (2), Laurel	0.22
Kent Co. Health Department	125 Lynchburg Street Chestertown, MD 21620	0.07
Maryland Department of the Environment	1800 Washington Boulevard Baltimore, MD 21230	12.25

FACILITY	LOCATION	AMOUNT COLLECTED (lbs)
Prince George's County Department of Environmental Resources - Brown Station Road Sanitary Landfill	3500 Brown Station Road Upper Marlboro, MD 20774	0.42
Queen Anne's County Health Department, Clinical Programs	206 N. Commerce Street Centreville, MD 21617	0.21
Salisbury Fire Department	Station 16 Headquarters 143 South Division Street Salisbury, MD 21801	0.11
Washington County Health Department	NO LONGER COLLECTING	5.92
Worcester County Health	6040 Public Landing Road Snow Hill, MD 21863	0.12
Total Collations		44.07

To increase participation at thermometer drop-off collection sites, an exchange program was initiated using donations from CVS (3,000 coupons) and EPIC (1,000) pharmacies. In exchange for dropping off mercury fever thermometers, coupons for free digital thermometers were offered at events jointly organized by MDE and MES. Such events were held in Allegany, Calvert, Charles, Garrett, Harford, Kent, Prince George's, St. Mary's, Wicomico, and Worcester Counties. MDE also collected fever thermometers at ten Joint eCycling (electronics recycling) and Mercury Thermometer Exchange Project events.

Also, in 2003 MDE worked with WBOC 16 Salisbury to produce a 15-second television commercial. The purpose of this commercial was to increase awareness and announce collection events where Marylanders could participate and reduce mercury in the environment. Funds for production and airing the commercial were provided by CVS and EPIC pharmacies. The commercial ran for ten days, starting on March 21, 2003 and was broadcasted by three television stations: WBAL 11 Baltimore, WBOC 16 Salisbury, and WHAG-NBC 25 Hagerstown.

v. Multi-state Cooperation

Although not an issue related to products containing mercury, through its participation in the Ozone Transport Commission (a consortium of 12 Northeast and Mid-Atlantic states plus the District of Columbia) MDE pursues aggressive control of a variety of emissions, including mercury, transported from upwind states in the Midwest and South. Midwestern coal-fired power plants pose the greatest concern, primarily due to the large number of them and the fact that their emissions tend to travel generally eastward towards Maryland.

3. FEDERAL AND STATE MERCURY REQUIREMENTS

A. FEDERAL LEVEL MERCURY REQUIREMENTS

MDE continues to closely monitor the progress of US EPA's proposed rulemaking promulgated on December 15, 2003 concerning mercury emissions reductions from coal-fired power plants. US EPA Administrator Leavitt withdrew the highly controversial proposed rule for further analysis, and a final rule is expected in March 2005. Coal-fired power plants represent the largest unregulated source category for mercury emissions.

MDE is also following the movement of federal Senate Bill 616: Mercury Reduction Act of 2003 which on November 18, 2003 was placed on Senate Legislative Calendar under General Orders. This bill, if passed, would limit the use of mercury fever thermometers and improve the collection and proper management of mercury. The bill would also authorize funds for grants to implement a national program for the collection of mercury fever thermometers from households and their exchange for thermometers that do not contain liquid mercury.

B. OTHER STATES

Through the Northeast Waste Management Officials Association (NEWMOA) list serve, MDE tracks the mercury legislation of other states as required by the Mercury and Products that Contain Mercury Act. While Table 4 (below) summarizes other states' mercury compliance requirements, this section will highlight some recently enacted legislation. Additionally, model mercury products legislation prepared by NEWMOA can be found in Appendix C of this document. The development of this model legislation is a result of discussions and comments from various groups of stakeholders and has been based on the experiences and expertise of various states which have either proposed or enacted similar legislation.

Topics covered by this proposal include:

- interstate clearinghouse,
- notification,
- restrictions on sale of certain mercury-added products,
- phase-out and exemptions,
- labeling of mercury-added products,
- collection of the existing inventory of all banned or phased-out mercury-added products,
- disclosure for mercury containing formulated products that are used in health care facilities, and
- limitations on the use of elemental mercury.

i. Labeling Products Containing Mercury

Similarly as in Maryland the following states have enacted legislation that requires labeling of certain mercury containing products: Connecticut, Maine, Minnesota, New

York, Rhode Island, Vermont, and Washington. The purpose of labeling is to notify consumers that a given product contains mercury as well as to inform that such products should be discarded properly. Labeling is an important step in ensuring that mercury containing products are properly managed at the end of their useful life.

ii. Vehicle Switches

Recently a number of states took steps or are considering taking steps to ensure the proper removal of mercury switches from end-of-life vehicles to prevent mercury release which occurs during steel production from old auto-parts. While some states prefer voluntary measures to deal with this issues, other states have passed legislation which is meant to minimize mercury releases from car switches.

The Michigan Department of Environmental Quality and the Alliance of Automobile Manufacturers established the Michigan Mercury Automotive ‘Switch/Sweep’ Program. The goal of the program is to inspect and remove mercury switches from at least 80 percent of the total number of motor vehicles processed in Michigan each year. The New York State Department of Conservation (NYDEC), working under a grant from US EPA, designed and carried out a pilot project with a goal to collect and recycle mercury switches from the hoods and trunks of automobiles. In Washington, the Department of Ecology and Department of Health are investigating the feasibility of replacing mercury switches in their departmental fleets, with the possibility of extending this effort to include the entire state government fleet.

In Maine, motor vehicles are prohibited from being scrapped without first removing mercury switches. Auto manufacturers are required to fund programs and provide information on the safe removal and disposal of auto switches. Similarly the Minnesota Waste Management Act requires auto switches to be removed prior to crushing the vehicle, while the Oregon Mercury Reduction Act requires anyone crushing a vehicle to remove mercury containing light switches and manage the mercury properly.

Additionally, during its October 2004 meeting, the Environmental Council of the States (ECOS), a national non-profit association of state and territorial environmental commissioners, passed a resolution which calls on the US EPA to promote a mercury switch removal program. Full text of the resolution is posted on ECOS website at: http://www.ecos.org/files/1117_file_Copy_of_Resolution_04_8.pdf.

iii. Dental Reductions

A number of states are regulating amalgam use by dentists. In Maine the installation of amalgam separators is required. In addition, dentists using mercury or a mercury amalgam are obliged to display an informational poster in the public waiting area and need to provide each patient with a copy of a brochure informing them about mercury dental products. In Connecticut, dentists are required to apply Best Management

Table 4: State-level Mercury Compliance Requirements

State	Restrict Sale of Elemental Hg	End-of-life Vehicle Switch Removal	Dental Reductions	Novelty Ban	Disposal Ban/Separate Hg	Collection Required	Sludge/Compost Land Application	Notify State Hg Content	Hg Product Labeling	Thermometer Ban	Schools Ban	Education/Outreach
CA			x + Med. Insurance Prog. to pay for amalgam alternatives	x (Battery, toys, packaging)	x Electronics & cell phone recycling e (vhcl switch)					x + Thermostat	x	x
CT				x					x	x		
FL				x (Packaging)	x (Landfill, incnrt) except: lamp&bttry							
IL				x	x vhcl switch			x		x	x	
IN				x		x Wholesalers to serve as collection centers				x	x	x
ME	x Written Notification	x	x		x Insc & landfilling of electronics & lamps	x Car Switches		x	x	x + Other Measuring Devices	x	x
MD									x	x	x	x
MA			x							x + Manometers, Thermostats, Car Switch, Relays		
MI										x	Phase Out	
MN		x	x (Voluntary)	x	x Disposal of Hg prod to SW & WWS				x	x		
NE										x		
NH	x		x	x				x		x	x	x
NY	x		x	x			x		x	x	x	
OR		x		x	x (Vhcl switch)					x		
RI	x		x	x	x	x		x	x	x + Thermostat	x	x
VT					x				x	x		
WA				x					x (Lamps)	x + Manometers	x	x

x - in place
e - encouraged

Data source: NEWMOA list serve

Practices adopted by the Commissioner of Environmental Protection and to properly handle and dispose of waste elemental mercury and amalgam. The New Hampshire General Court adopted legislation requiring that dentists present patients with a standardized pamphlet regarding the risks and benefits of dental materials. The New Hampshire Department of Environmental Services is in the process of adopting rules for dental offices relative to the use of environmentally appropriate disposal equipment for amalgam waste. New York law obliges all dentists to recycle any elemental mercury and dental amalgam waste generated in their dental practices.

III. RECOMMENDATIONS FOR CHANGES TO THE LAW

1. SUMMARY OF OTHER EXISTING MERCURY REQUIREMENTS IN MARYLAND

MDE implemented US EPA's Universal Waste Rule through regulation (Code of Maryland Regulations (COMAR) 26.13.10.06 – .25). The Universal Waste Rule provides alternate management standards for waste mercury thermostats and waste mercury-containing lamps to encourage collection and recycling rather than disposal.

Also, MDE, in cooperation with the Board of Public Works and the Department of General Services, promulgated regulations effective October 1, 2003 to ensure the state agency procurement favors products and equipment that are mercury free or contain the least amount of mercury necessary to meet product or equipment performance standards. Maryland was the first state to develop regulations for a comprehensive procurement preference for state government.

2. EXISTING AND POSSIBLE FUTURE MDE EFFORTS RELATED TO MERCURY AND PRODUCTS THAT CONTAIN MERCURY

In the 2003 Mercury Report the Department identified the most important efforts necessary to minimize negative environmental and public health effects associated with products that containing mercury. This section summarizes MDE's progress in respect to these efforts and outlines activities which will require further attention.

a) Build upon existing fish consumption advisories and outreach efforts to further reduce mercury exposure in the population that catches and consumes fish from mercury-impacted waters throughout the State. Such consumption advisories are most important for children and women of childbearing age.

In 2004 MDE continued to work towards reducing exposure of the population to mercury in the fish. Major developments in this area included:

- continuation of fish tissue monitoring;
- maintaining a website with most current information regarding fish consumption advisory in Maryland
(<http://www.mde.state.md.us/CitizensInfoCenter/FishandShellfish/home/index.asp>);

- participation in two Baltimore area focus group meetings;
- review of new outreach materials from Baltimore City Health Department – currently in distribution;
- review of MDE statewide brochure for women and children by health educators and the director of the Maryland Women, Infants, and Children (WIC) Program at DHMH;
- selection of preliminary distribution points for MDE fish advisory informational brochures;
- distribution of approximately 13,000 brochures to local health departments;
- posting signs at 11 Baltimore Harbor fishing locations and distribution of approximately 300 brochures to fishermen in the posted areas;
- planning a training module to assist local WIC in educating women about national and state fish consumption guidelines – the module will be tested next spring.

The Department continues its commitment to ensuring that Maryland residents are informed about contamination levels found in the local fish species and plans to maintain activities mentioned above.

b) Sponsor local seminars around the State to educate the public and medical practices about mercury issues.

The Department has been playing a vital role in educating the public about issues related to mercury and products that contain mercury (for a summary of Department's outreach efforts check sections 2.A and 2.B.ii of this document). MDE will continue its public outreach efforts and will continue to work with Hospitals for a Healthy Environment to address the need for mercury elimination in medical facilities.

c) Support educational programs to encourage voluntary implementation of best management practices (BMPs) for recycling dental amalgam. Include evaluation methods to determine participation. Consider hosting a mercury summit with the American Dental Association (ADA) and American Medical Association (AMA).

The Department anticipates starting this process in 2005.

d) Participate in the Chesapeake Dental Conference (upon invitation) – educational and collection effort.

This effort is summarized in Section 2.B.iii of this report. The Department plans to participate in next year's Chesapeake Dental Conference in order to continue educating Maryland's dentists about the existing best management practices for mercury and to provide an opportunity to safely dispose of elemental mercury as well as other products containing mercury.

e) Work with the University of Maryland Dental School to include mercury in environment awareness training for dental students and promote non-mercury dentistry using composites.

This goal was accomplished as the University includes mercury BMPs in its curriculum.

f) Determine the feasibility of requiring ongoing monitoring of mercury in the influent effluent and biosolids at wastewater treatment plants.

The Department plans to focus on this issue in 2005.

g) Seek Clean Water Act Section 104(b)(3) grant funding for Water Management Administration MDE efforts.

The Department applied for this grant during 2004 but did not receive any funding. MDE plans to submit another application in 2005.

h) Coordinate MDE efforts with stakeholders, neighboring states, and regional organizations.

MDE will continue to involve stakeholders in its plans to reduce mercury emissions to Maryland's environment and will continue its involvement with the Ozone Transport Commission.

3. RECOMMENDATIONS

In the recent years the Mercury and Products that Contain Mercury Act has been an important step forward for Maryland in increasing initial awareness regarding mercury pollution and reducing mercury releases to the environment by:

- mandating educational, outreach, and assistance efforts,
- planning and implementing a mercury clean up for schools,
- introducing requirements regarding product labeling and reclamation of mercury added fluorescent lamps,
- promulgating regulations requiring State Agencies to give preference to products and equipment that are free of mercury or contain the least amount of mercury.

While MDE will continue fulfilling existing mercury requirements, at this time, the Department has no further recommendations with respect to Mercury and Products that Contain Mercury Act.

IV. APPENDIX

APPENDIX A – REFERENCES

- NEMA, 2001. Fluorescent Lamps and the Environment: Mercury Use, Environmental Benefits, Disposal Requirements. NEMA01BR, January 2001. Available at: <http://www.nema.org/lamprecycle/nemafluorfinal.pdf>.
- Oregon Department of Environmental Quality, 2003. Common Products Containing Mercury Fact Sheet. March, 2003. Available at: <http://www.deq.state.or.us/wmc/FactSheets/CommonProductsContainingMercuryFactSheet.pdf>.
- US EPA, 1997a. Mercury Study Report to Congress Volume II: An Inventory of Anthropogenic Mercury Emissions in the United States. EPA/452/R-9/003, December 1997. Research Triangle Park, NC. Also available at: <http://www.epa.gov/ttn/oarpg/t3/reports/volume2.pdf>.
- US EPA, 1997b. Mercury in the Environment: Do You Work with Any of These Items That May Contain Mercury? Available at: <http://www.epa.gov/glnpo/p2/mercpam.html>.
- US EPA, 1997c. Wisconsin Mercury Source Book: A Guide to Help Your Community Identify and Reduce Releases of Elemental Mercury: Mercury Use: Dentists. May 1997. Available at: <http://www.epa.gov/grtlakes/bnsdocs/hgsbook/dentist.pdf>.
- US EPA, 2002. Toxics Release Inventory: 2002 TRI Data Release: TRI Explorer. Washington, D.C. Available at: <http://www.epa.gov/triexplorer/>.

APPENDIX B – MDE OUTREACH MATERIALS

General Mercury Information

What is mercury?

Mercury, chemical symbol Hg, is a silver-colored metallic element that is toxic to living organisms. At room temperature, elemental mercury is a liquid, conducts electricity, and mixes easily with other metals. Mercury also expands and contracts evenly with temperature changes. Elemental mercury easily breaks up into many small droplets and evaporates to form mercury vapor, a colorless and odorless gas. One of the organic forms of mercury, methyl mercury, is volatile, very water soluble, and the most toxic form of mercury. Mercury can cycle in the environment due to its ability to change forms.

Where is mercury found?

Although mercury is a naturally occurring element, more than two-thirds of the mercury in the atmosphere comes from human-made products and energy production activities. Mercury is released into the atmosphere through a variety of means such as evaporation from water and land, but primarily through coal-fired utility and incinerator emissions. Mercury gets into the soil through the natural breakdown of mercury-containing rocks, disposal of mercury in landfills, and atmospheric deposition. It enters the watershed through runoff, atmospheric deposition, and when mercury products are poured down the drain. Once in the water cycle, mercury can convert to methyl mercury. Methyl mercury can accumulate in the tissues of fish and other organisms inhabiting mercury contaminated bodies of water, and may be carried up the food chain.

What are the impacts of mercury exposure on humans?

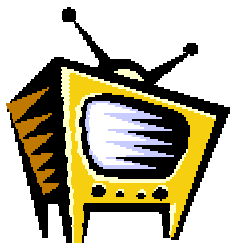
Humans are exposed to mercury through their diet (primarily through fish), absorption, or through the inhalation of toxic elemental mercury fumes. Signs and symptoms of brief exposure may include coughing, shortness of breath, chest pain, nausea, vomiting, diarrhea, fever, and bronchitis. Long-term exposure can result in shakiness, tremors, loss of muscle control, memory loss, kidney disease, and loss of appetite and weight. The health effects due to mercury exposure depend on several factors, including the amount of consumed, absorbed, or inhaled mercury and the length and frequency of exposures. Also a person's general health status, age, gender, family history, diet and lifestyle, and exposure to other chemicals may have an effect on whether the mercury causes an ill effect. Young children and fetuses are most sensitive to mercury poisoning during early development to age six.

What can you do to help prevent mercury pollution?

- Once mercury is released it is difficult to remove, so the best practice is to prevent mercury from entering the environment, whenever feasible.
- Mercury is being phased out of many retail products such as thermometers. However, as a consumer, educate yourself, do not buy mercury-containing items if a substitute is available. Below is a chart of items containing mercury and their alternative.
- Separate out household products containing mercury (thermometers and the like) and dispose of them during hazardous household waste collection days, when other products such as paint and pesticides are collected.

Items with Mercury	Alternatives
Thermometers	Red Bulb (Alcohol) Thermometers or Digital Thermometers
Non-Electronic Thermostats and Thermostat Probes	Electronic Thermostats and Sodium/Potassium Thermostat Probes
Barometers	Aneroid Barometers
Old Alkaline-Type Batteries Prior to 1996	Rechargeable Alkaline or Mercury-Free Batteries
Quicksilver Maze Toys (Old)	Mercury-Free Toys
Old Latex Paint (Before 1990)	New Latex Paint
Some Shoes that Light Up	Mercury-Free Shoes
Some Light and Appliance Switches such as in clothes irons or space heaters	Mechanical or Electrical Switches such as magnetic dry or optic sensor switches
Contact Lens Solutions Containing Thimerosal	Solutions Without Thimerosal
Button Batteries	Mercury-Free Button Batteries
Lamps (Fluorescent, High Intensity Discharge and Mercury Vapor Lamps)	Low Mercury Fluorescent Lamps, Sulfur Lamps, Low Mercury Sodium Lamps (Energy conserved by using these lights will reduce mercury emissions from coal & oil combustion)

- Recycle button batteries.
- Conserve electricity. If electric generating stations burn less coal and oil (that naturally contain mercury) they will emit less mercury into the environment.
- [Recycle and reuse](#) as many products as possible to decrease the amount of waste that needs to be incinerated.



Facts about Mercury

Kid's Facts about Mercury

What is MERCURY?

MERCURY is a heavy silver-colored metal that can change from a liquid to gas. MERCURY has many uses, but it can also be harmful to humans and wildlife.

Where do you find MERCURY?

MERCURY is the only metal that is liquid at room temperature. It is used in switches, toys and games.

MERCURY expands and contracts with temperature changes. It is used in thermometers and thermostats.

MERCURY conducts electricity. It is used in some light bulbs and in televisions and computer monitors.

MERCURY builds up in certain kinds of fish through the food chain.

Where does MERCURY come from?

There are natural and human-made sources of MERCURY in the environment. Natural sources of MERCURY are in soils and rocks, forest fires and volcanic eruptions. More than half of the MERCURY in the environment comes from human sources such as burning coal to create electricity, burning trash, and improper disposal at landfills. Burning coal and trash releases MERCURY in the form of gas and particles into the air. Rain and snow bring MERCURY in the air back to the earth's surface. Improper disposal causes MERCURY to get into the water and soil.

How can we help prevent MERCURY pollution?

- Educate yourself and others about MERCURY.
- Tell your parents to buy MERCURY-free products, such as alcohol or digital thermometers.
- Help separate out household products containing MERCURY (thermometers, batteries, and the like) and dispose of them during household hazardous waste collection days.
- Turn lights and computers off when not in use to conserve electricity to reduce the amount of coal burned to generate electricity.
- Recycle and reuse as many products as possible to decrease the amount of trash that needs to be burned or put in landfills.

SPILLS IN A DRAIN

- Mercury will get caught in a sink trap. Working over a large tray or box, remove the trap and pour the contents into a wide-mouth container
- Seal the container with duct tape
- Place the container and cleanup supplies (sink trap, gloves, etc) in a plastic bag, seal and label "mercury waste"
- Place bag in a second plastic bag, seal and label "mercury waste"

BROKEN FLUORESCENT OR OTHER MERCURY VAPOR CONTAINING LAMPS

- Using cardboard pieces, carefully scoop up mercury-containing glass pieces and powder
- Place glass and powder in a plastic bottle/container
- Seal container with duct tape and label "mercury waste"
- Place container and cleanup supplies (contaminated tape, cardboard and gloves, etc.) in a plastic bag, seal and label "mercury waste"
- Place bag in a second plastic bag, seal and label "mercury waste"

Contact your County for "mercury waste" collection procedures in your area.

By law, spills one pound (34 ml or approximately two tablespoons) or more are to be reported to the National Response Center (800-424-8802)



Maryland Department of the Environment

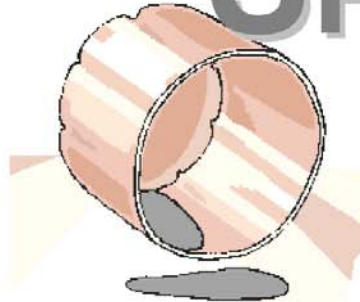
1800 Washington Blvd, Baltimore, Maryland 21230

410-537-3000

1-800-633-6101 toll free within Maryland

www.mde.state.md.us

MERCURY SPILLS



Cleanup and Safety



Mercury can be found in household, commercial and industrial products in liquid or vapor form. Elemental mercury is a shiny liquid, silver-white in color and is found in thermometers, thermostats and irons. Mercury vapor, a colorless, odorless gas, is found in fluorescent, high intensity discharge, neon and some automotive headlamps. Elemental mercury when spilled (at room temperature) can break up into small droplets and evaporate to form mercury vapor.

Exposure to Elemental mercury or mercury vapor is toxic, especially to children and infants. Mercury exposure can adversely impact nervous system development. Contact your physician or a poison control center immediately if you or your children have been exposed to mercury liquid or vapor.

Elemental mercury spills - even small amounts - should be cleaned up immediately following pamphlet instructions. Call Emergency Response Division, Maryland Department of the Environment at (410) 974-3551 with any questions.

CAUTIONS

- NEVER touch mercury with bare hands
- NEVER use a vacuum cleaner on a mercury spill it will cause vaporization
- NEVER use a broom to cleanup a mercury spill it will cause the mercury to break up into smaller beads which will be difficult to collect
- NEVER put mercury waste down the drain, in the trash or incinerator
- NEVER use household cleaners to cleanup mercury spills

MANAGING SPILL AREA

- Keep all people and pets away from the spill area
- Shut doors and all air vents to spill area to avoid spreading contamination
- Cool down spill area by opening windows or doors facing the outdoors for two days if possible - use fans to pull air outside to decrease vaporization
- Remove any contaminated clothing and shoes before exiting spill area (Place contaminated clothing in plastic bags with other "mercury waste")
- Contain mercury spill by diking the surrounding area with rags or other disposable items – a flashlight will help locate Mercury since it reflects light

ASSEMBLE NECESSARY CLEANUP EQUIPMENT

- Neoprene gloves
 - Permanent marker
 - Pieces of cardboard
 - Flashlight
 - Rags
 - Plastic soda bottles or wide-mouth container
 - Large tray or box
 - Duct tape
 - Cutting utensil
 - Plastic bags
 - Eyedropper or small baster
- Put gloves on before entering spill area. Following cleanup, remove gloves carefully turning inside out to avoid touching mercury and wash hands.

SPILLS ON HARD SURFACES

- Using cardboard pieces, push beads of mercury together
- Using eyedropper suction up mercury or use cardboard to lift up beads
- Carefully place mercury in plastic soda bottle/container, seal with duct tape
- Pick up remaining beads with tape.
- Place container and cleanup supplies (contaminated tape, rags, eyedropper, cardboard and gloves, etc.) in a plastic bag, seal and label "mercury waste"
- Place bag in a second plastic bag, seal and label "mercury waste"

SPILLS ON CARPET OR RUG

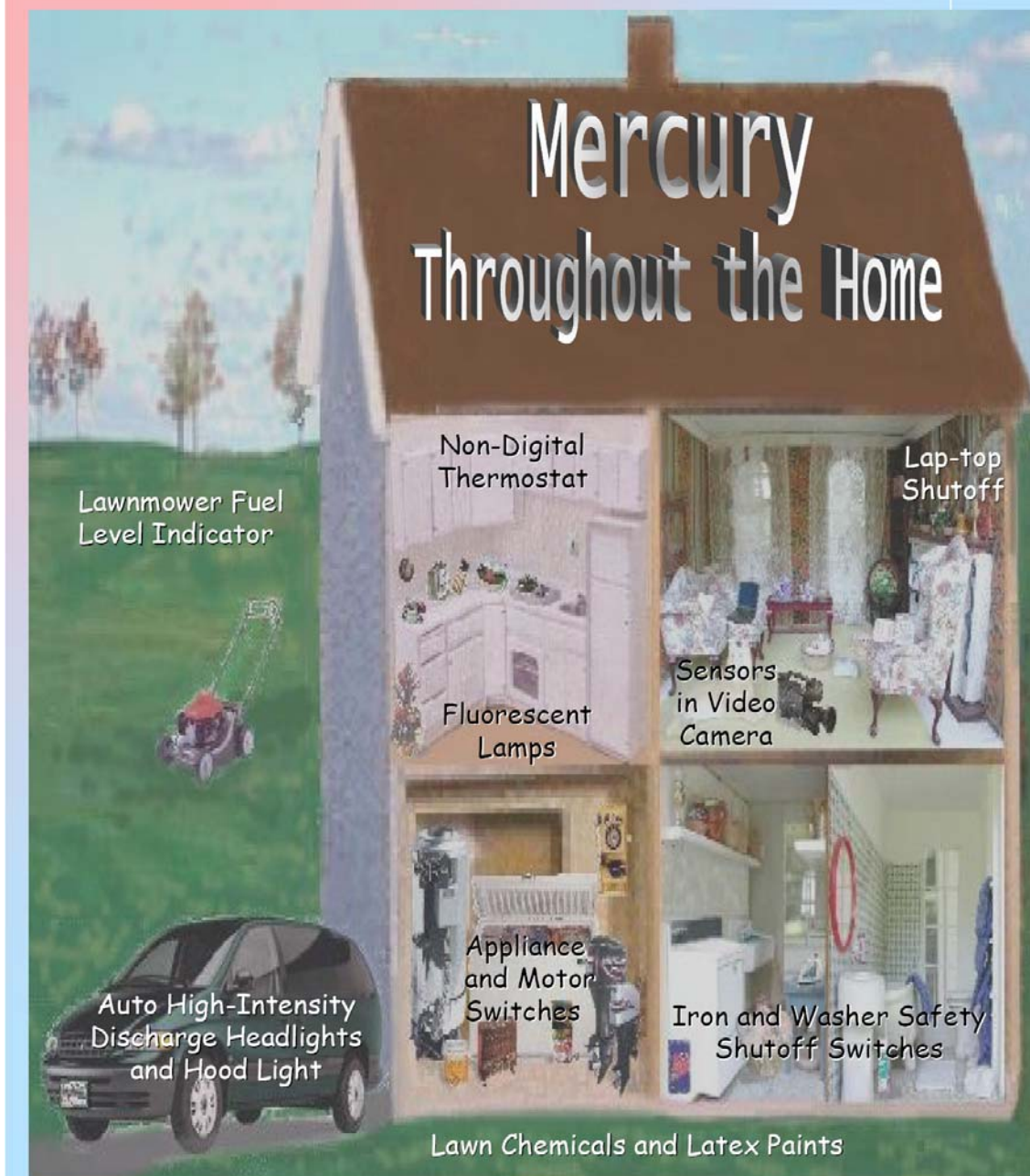
- Cut out a section of carpet/rug a bit larger than the mercury-containing area to ensure that all the mercury is captured
- Place cut-out section, gloves and cutting utensil in container
- Seal container with duct tape and label "mercury waste"
- Place container in a plastic bag, seal and label "mercury waste"

SPILLS IN A SINK OF WATER

- Remove as much water as possible without disturbing the mercury at the bottom (since mercury sinks to the bottom)
- Suction mercury from the bottom with eyedropper
- Empty the eyedropper into a plastic soda bottles or wide-mouth container
- Seal container with duct tape
- Place container and cleanup supplies (gloves, eyedropper, etc.) in a plastic bag, seal and label "mercury waste"
- Place bag in a second plastic bag, seal and label "mercury waste"

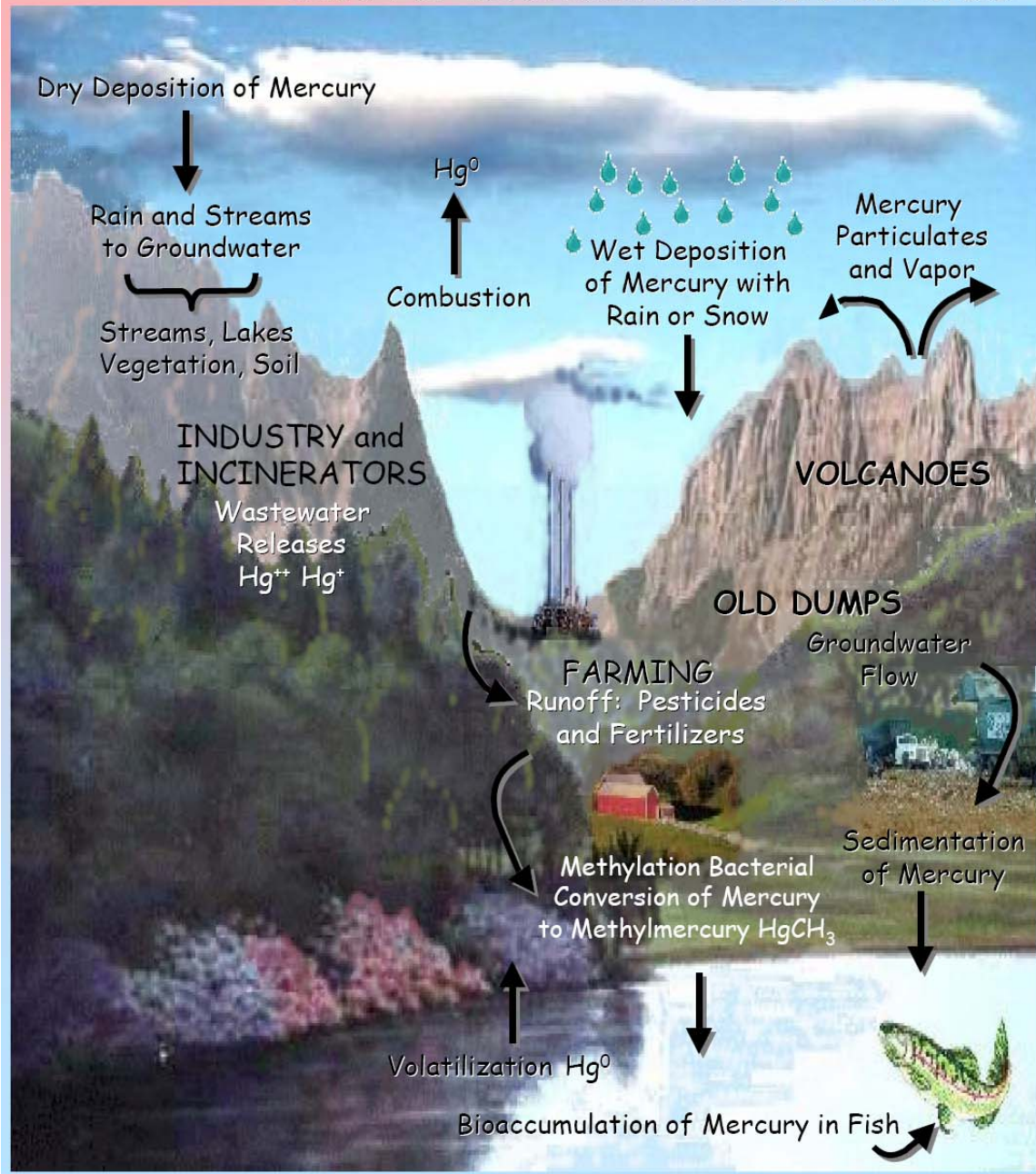
Mercury

Household Sources



Mercury

Environmental Sources





Mercury Recycling Resources

Maryland
Department
of the
Environment

MERCURY SPILL KIT VENDORS

Although Maryland Department of the Environment does not recommend any particular brand or vendor of spill kits, the following is a list of mercury spill kit vendors. For information on a synopsis of mercury spill kits, consult www.brooks.af.mil/dis/DIS60/sec6b.htm.

Abatix Environmental Supply
3011 East Broadway, Ste 300
Phoenix, AZ 85040
1-602-323-1941
1-800-889-5186
www.abatix.com

Advanced Environmental Sol'n's
204 First Avenue South
3rd Floor
Seattle, WA 98104
1-800-275-3549
1-206-652-2323
www.advenvironmental.com

Bel-Art Products
6 Industrial Road
Pequannock, NJ 07440-1992
1-973-694-0500
www.bel-art.com

Bethlehem Apparatus Co., Inc
Resource Recovery & Recycling
890 Front Street
P.O. Box Y
Hellertown, PA 18055
1-610-838-7034
www.mercuryrecycling.com

Fisher Scientific
2000 Park Lane
Pittsburgh, PA 15275
1-800-772-6733
www.fishersci.com

Flinn Scientific, Inc.
P.O. Box 219
Batavia, IL 60510
1-800-452-1261
www.flinnsci.com

Lab Safety Supply
P. O. Box 1368
Janesville, WI 53547-1368
1-800-356-0783
www.labsafety.com

Lamp Recyclers of Louisiana, Inc.
P. O. Box 2962
Hammond, LA 70404-2962
1-800-309-9908
www.lamprecyclers.net

Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865
1-800-582-2537
www.mallbaker.com

Safetec of America
1055 East Delevan Avenue
Buffalo, NY 14215-3145
1-800-456-7077
www.safetec.com

Sanderson Safety Supply
1101 SE 3rd Avenue
Portland, OR 97214
1-800-547-0927
www.sandersonsafety.com

Thomas Scientific
99 High Hill Road @ I-295
P.O. Box 99
Swedesboro, NJ 08085
1-800-345-2100
www.thomassci.com

VWR Scientific Products
5 Marway Circle
Rochester, NY 14624
1-800-932-5000
1-716-247-0613
www.vwrsp.com

**MARYLAND DEPARTMENT OF THE ENVIRONMENT ♻️ WASTE MANAGEMENT ADMINISTRATION
Hazardous Waste Program**

1800 Washington Boulevard • Baltimore, Maryland 21230-1719
410-537-3345 • 800-633-6101 x3345 (within Maryland)

Robert L. Ehrlich, Jr.
Governor

Together We Can Cleanup



www.mde.state.md.us

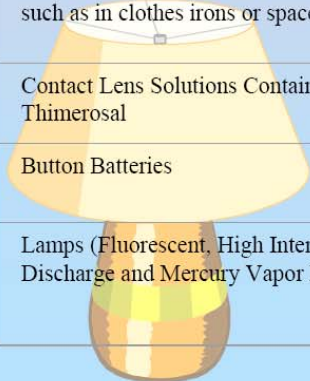
Michael Steele
Lt. Governor

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01/15/03

Mercury

Identifying Products & Alternatives

Items with Mercury	Alternatives
Thermometers	Red Bulb (Alcohol) Thermometers or Digital Thermometers
Non-Electronic Thermostats and Thermostat Probes	Electronic Thermostats and Sodium/Potassium Thermostat Probes
Barometers	Aneroid Barometers
Old Alkaline-Type Batteries Prior to 1996	Rechargeable Alkaline or Mercury-Free Batteries
Quicksilver Maze Toys (Old)	Mercury-Free Toys
Old Latex Paint (Before 1990)	New Latex Paint
Some Shoes that Light Up	Mercury-Free Shoes
Some Light and Appliance Switches such as in clothes irons or space heaters	Mechanical or Electrical Switches such as magnetic dry or optic sensor switches
Contact Lens Solutions Containing Thimerosal	Solutions Without Thimerosal
Button Batteries	Mercury-Free Button Batteries
Lamps (Fluorescent, High Intensity Discharge and Mercury Vapor Lamps)	Low Mercury Fluorescent Lamps, Sulfur Lamps, Low Mercury Sodium Lamps (Energy conserved by using these lights will reduce mercury emissions from coal & oil combustion)





Mercury Recycling Resources

MERCURY RECYCLERS

Maryland
Department
of the
Environment

The following is a partial listing of mercury recyclers. The companies are arranged in alphabetical order. The list was prepared by the Maryland Department of the Environment from information known to the Department and available at the time of preparation. The Department makes no claim as to its completeness or as to the quality of work performed by the companies. Users of this list are responsible for ensuring that products, equipment, or services comply with the requirements of local, state, and federal law.

AERC.Com, Inc.
(800) 808-4684
(800) 554-2372
Allentown, PA
www.aercmti.com

Air Cycle, Corp.
2000 South 25th St.
Suite C
Broadview, IL 60155
www.aircycle.com

Bethlehem Apparatus
890 Front Street
P.O. Box 4
Hellertown, PA 18055
(610) 838-7034
www.bethlehemappartus.com

Care Environmental
3400 Brown Station Road
Upper Marlboro, MD 20774
(800) 494-2273

Clean Harbors Environmental Services
1910 Russell Street
Baltimore, MD 21230
(800) 622-3360

Clean Ventures
2031 Iverness Avenue
Baltimore, MD 21230
(410) 368-9170

D.F.Goldsmith Chemical & Metal Corp.
909 Pitner Ave
Evanston, IL
(708) 869-7800
www.dfgoldsmith.com

Envirolight, Inc.
1967 West 9 St.
Riviera Beach, FL 33404
(800) 840-1719

Envirolight & Disposal, Inc.
2840 Scherer Dr., Suite 430
St. Petersburg, FL 33716
www.envirodisp.com

Environmental Recycling
527 E. Woodland Circle
Bowling Green, OH 43402
(800) 284-9107

Everlights
9901 West Torrance Avenue
Chicago, IL 60617
(815) 469-0631
www.everlights.com

Full Circle, Inc.
New Freedom, PA
(800) 775-1516
www.fcballast.com

Heritage Environmental Services
7901 West Morris St.
Indianapolis, IN 46231
(317) 243-0811
www.heritage-enviro.com

Mercury Waste Solutions, Inc.
Albany, NY
Atlanta, GA
(800) 699-2895

National Environmental Services, LLC
P.O. Box 390407
Minneapolis, MN 55439
(800) 872-2226
www.nesllc.com

Onyx Electronics Recycling
Phoenix, AZ
Port Washington, WI
Stoughton, MA
Tallahassee, FL
(800) 556-5267
www.onyxes.com

Safety Kleen
1448 Desota Road
Baltimore, MD 21230
(410) 525-0001

**MARYLAND DEPARTMENT OF THE ENVIRONMENT ♻️ WASTE MANAGEMENT ADMINISTRATION
Hazardous Waste Program**

1800 Washington Boulevard • Baltimore, Maryland 21230-1719
410-537-3345 • 800-633-6101 x3345 (within Maryland)
www.mde.state.md.us




Robert L. Ehrlich, Jr.
Governor

Kendl P. Philbrick
Secretary

Michael S. Steele
Lt. Governor

Fish Consumption Advisories in Maryland Lakes, Impoundments, and Non-tidal Rivers

Annual consumption based on 8 oz meal size, or the edible portion of 9 crabs. (8 oz - Women; 3 oz Children)

Species	Geographical Links	Allowable Meals/Year			Contaminants
		Gen Pop.	Women*	Children**	
		8 oz meal	8 oz meal	3 oz meal	
 Small and Largemouth Bass***	Statewide: all publicly accessible	48	48	24	Methylmercury
	All Rivers and Streams	-	96	96	
	Lake Lariat, Piney Dam and Savage Reservoir	12	12	AVOID	
 Blue Gill	Statewide: all publicly accessible lakes and impoundments	96	96	96	Methylmercury
 Yellow Perch	Piney Dam Deep Creek Lake	48	48	24	Methylmercury

* Women of childbearing age who are pregnant, may become pregnant or are nursing

** Children up to age 6

***Advisories for lakes and impoundments above also apply to pickerel, northern pike, and walleye.

Practical Guide to Integrating BMPs Into Your Practice

Non-contact (scrap) amalgam

- Place non-contact, scrap amalgam in a wide-mouthed, airtight container that is marked "Non-contact Amalgam Waste for Recycling."
- Make sure the container lid is well sealed.

Amalgam capsules

- After mixing amalgam, place the empty capsules in a wide-mouthed, airtight container that is marked "Amalgam Capsule Waste for Recycling."
- Capsules that cannot be emptied should likewise be placed in a wide-mouthed, airtight container that is marked "Amalgam Capsule Waste for Recycling."
- Make sure the container lid is well sealed.
- When the container is full, send it to a recycler.

Disposable chair-side traps

- Open the chair-side unit to expose the trap.
- Remove the trap and place it directly into a wide-mouthed, airtight container that is marked "Contact Amalgam Waste for Recycling."
- Make sure the container lid is well sealed.
- When the container is full, send it to a recycler.
- Traps from dental units dedicated strictly to hygiene may be placed in with the regular garbage.

Practical Guide to Integrating BMPs Into Your Practice cont.

Reusable chair-side traps

- Open the chair-side unit to expose the trap.
- Remove the trap and empty the contents into a wide-mouthed, airtight container that is marked "Contact Amalgam Waste for Recycling."
- Make sure the container lid is well sealed.
- When the container is full, send it to a recycler.
- Replace the trap into the chair-side unit. (Do not rinse the trap under running water as this could introduce dental amalgam into the waste stream.)

Vacuum pump filters

- Change the filter according to the manufacturer's recommended schedule. Note: The following instructions assume that your recycler will accept whole filters; some recyclers require different handling of this material, so check with your recycler first.
- Remove the filter. While holding the filter over a tray or other container that can catch any spills, decant as much of the liquid as possible without losing any visible amalgam. The decanted amalgam-free liquid can be rinsed down the drain.
- Put the lid on the filter and place the sealed container in the box in which it was originally shipped. When the box is full, the filters should be recycled.

Amalgam Recycling in Maryland



BEST MANAGEMENT PRACTICES

Developed by the American Dental Association

Distributed in cooperation with Maryland State Dental Association, Maryland Dental Society, Maryland Department of the Environment



A guideline demonstrating how to manage and recycle dental amalgam waste to help protect the environment.

Dental Amalgam Recycling

Dental amalgam waste can be recycled to help prevent the release of mercury to the environment. Following the simple 'Do' & 'Don't' suggestion outlined in the chart will help protect the environment.

AMALGRAM RECYCLERS

- **Bethlehem Apparatus**
890 Front Street, P. O. Box 4
Hellertown, PA 18055
610-838-7034
- **METASYS Group**
5001 SW 74th Court, Suite 206
Miami, Florida 33155
877-638-2797
- **Mercury Waste Solutions, Inc.**
Union Grove, WI
800-741-3343
- **AERC.Com Inc.**
116 Sylvia Road, #E
Ashland, VA 23005
866-763-7287
- **Amalgaway**
3672 E. Raymond Street
Indianapolis, IN 46203
800-267-1467
- **SolmeteX, Inc.**
50 Bearfoot Road
Northborough, Massachusetts 01532
1-800-216-5505

Contact A
Local
Amalgam
Recycler

Best Management Practices for Amalgam Recycling

DO	DON'T
Do use precapsulated alloys	Don't use bulk mercury
Do recycle used disposable amalgam capsules	Don't put used disposable amalgam capsules in biohazard containers, infectious waste containers (red bags) or regular garbage
Do salvage, store and recycle non-contact amalgam (scrap amalgam)	Don't put non-contact amalgam waste in bio-hazard containers, infectious waste containers (red bags) or regular garbage
Do salvage (contact) amalgam pieces from restorations after removal and recycle the amalgam waste	Don't put contact amalgam waste in bio-hazard containers, infectious waste containers (red bags) or regular garbage
Do use chair-side traps to retain amalgam and recycle the content	Don't rinse chair-side traps containing amalgam over drains or sinks
Do recycle contents retained by the vacuum pump filter or other amalgam collection device, if they contain amalgam	Don't rinse vacuum pump filters containing amalgam or other amalgam collection devices over drains or sinks
Do appropriately disinfect extracted teeth that contain amalgam restorations (that is, 10 minutes in a 1:10 bleach-to-water solution) and recycle along with the chair-side trap waste (Note: Confirm with your recycler that they will accept extracted teeth with amalgam restorations)	Don't dispose of extracted teeth that contain amalgam restorations in biohazard containers, infectious waste containers (red bags) or regular garbage
Do manage amalgam waste through recycling as much as possible	Don't flush amalgam waste down the drain or toilet

APPENDIX C – NEWMOA MERCURY EDUCATION AND REDUCTION MODEL ACT

REVISED DISCUSSION DOCUMENT: MERCURY EDUCATION AND REDUCTION MODEL ACT

Prepared by the Northeast Waste Management Officials' Association

Introduction

In June 1998 the Conference of the New England Governors and Eastern Canadian Premiers endorsed a Regional Mercury Action Plan that included a recommendation to

- “reduce/eliminate the use of mercury in medical and consumer products to the extent feasible;
- identify and implement source reduction programs and develop model legislation;
- draft model legislation implementing coordinated labeling and manufacturer take-back programs to help consumers identify products containing mercury and how to properly dispose of them;
- eliminate the use of mercury in school science programs through initiation of programs and/or legislation; and
- adopt measures to curtail the sale of elemental mercury.”

As part of the regional effort to implement these recommendations, the Northeast Waste Management Officials' Association (NEWMOA) has drafted a discussion document in the form of model legislation (see below).

The intent of this document is to help address the Mercury Action Plan goal of the “virtual elimination of the discharge of anthropogenic mercury into the environment.” Therefore, NEWMOA intentionally designed this draft model legislation as a comprehensive package of provisions.

As a synthesis of numerous complementary approaches, the model provides a comprehensive framework to help states in the region develop more consistent approaches to managing mercury containing wastes. Such a regional approach has been proven successful in other areas, particularly the states' experience with toxics in packaging legislation passed in the early 1990s. By sharing their experiences and expertise the states can avoid duplication of efforts and research, thereby saving time and money. Product manufacturers can also benefit from having more consistent requirements throughout the region.

The draft model includes provisions and concepts that reflect current efforts to reduce mercury in waste streams. The designers do not view the model as a set of provisions that must all be enacted together or at the same time. The model is designed to present a flexible set of concepts from which the states can choose those that meet their

jurisdictional priorities. However, it is important that states implement their efforts as consistently as possible across the region.

NEWMOA developed this discussion document and policy concepts for consideration by the states in the Northeast. These concepts may also be useful as models for other jurisdictions and for efforts at the national level.

Most of the elements in the model have already been included in legislation adopted or proposed in one or more states. The following provides a guide to the states that have proposed or passed sections of the draft bill:

- | | |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section 4 | Interstate Clearinghouse: Same as Section 7 |
| Section 5 | Notification: Modeled after proposed legislation in Vermont |
| Section 6 | Restrictions on Sale of Certain Mercury-added Products: Modeled after legislation enacted in Minnesota |
| Section 7 | Phase-out and Exemptions: Modeled after the Toxics in Packaging legislation that has been enacted by 18 states, including almost all of the Northeast states, and several foreign countries. |
| Section 8 | Labeling of Mercury-added Products: Modeled after legislation enacted in Vermont, with modifications based on proposals from Vermont DEC. Mercury labeling legislation has been enacted by Minnesota, and Connecticut was authorized to develop labeling regulations. Similar legislation has been proposed in Massachusetts and Maine. |
| Section 9 | Disposal Ban: Modeled after legislation enacted in Minnesota. |
| Section 10 | Collection of the Existing Inventory of All Banned or Phased-Out Mercury-added Products: Modeled after legislation proposed in Massachusetts. |
| Section 12 | Disclosure for Mercury Containing Formulated Products That Are Used in Health Care Facilities: Modeled after legislation proposed in Massachusetts and drafted in consultation with health care facilities and the Massachusetts Water Resources Authority. |
| Section 13 | Limitations on the Use of Elemental Mercury: Modeled after legislation enacted in Minnesota. |

Stakeholder Meetings and Review

NEWMOA organized a stakeholder meeting in January 1999 in Connecticut to elicit ideas and suggestions from representatives of various stakeholder groups, including manufacturers, trade associations, environmental organizations, local and state government agencies, solid waste management firms, community groups, and others for the model legislation. From January to October 1999, a workgroup of state environmental agency representatives facilitated by NEWMOA took the ideas discussed at this stakeholder meeting and drafted the "Discussion Document: Draft Model Act to

Reduce Mercury Containing Waste.” This Discussion Document was released to stakeholders and on the Internet (www.newmoa.org) in November 1999.

NEWMOA held two Public Meetings in December 1999 in Massachusetts and New Hampshire to hear comments and suggestions from stakeholders, including manufacturers, trade associations, environmental organizations, local and state government agencies, solid waste management firms, community groups, and others on the draft Discussion Document. In January 2000 NEWMOA posted a summary of the verbal comments from these meetings on the Internet (www.newmoa.org). NEWMOA also received over 300 pages of written comments on the Discussion Document from December 1999 through January 2000.

NEWMOA’s Mercury Workgroup reviewed the written and verbal comments and made revisions to the Discussion Document from January through April 2000. At the same time the Mercury Workgroup prepared a Response to Comments paper and a summary of the revisions.

Section 1. An Act Concerning Mercury Education and Reduction

Section 2. The legislature finds and declares that:

- a. Mercury is a persistent and toxic pollutant that bioaccumulates in the environment.
- b. According to recent studies, mercury deposition is a significant problem in the Northeast.
- c. Consumption of mercury-contaminated freshwater fish poses a significant public health threat.
- d. Because of this threat, all of the Northeastern states have issued freshwater fish advisories, warning certain individuals against consuming fish from affected water bodies.
- e. Studies have documented that exposure to the elevated levels of mercury in the environment has resulted in serious harm to fish-consuming wildlife.
- f. Combustion of municipal and other solid waste is a major source of mercury in the Northeast.
- g. At least one recent study has raised concern about potential emissions of mercury during the transportation and storage of solid waste.
- h. Removal of mercury containing products from the waste stream prior to combustion is an effective way to reduce mercury at solid waste management facilities.
- i. The Governors of the New England States and the Premiers of the Eastern Canadian Provinces have endorsed a regional goal of “the virtual elimination of the discharge of anthropogenic mercury into the environment.”
- j. Manufacturers of certain mercury-added products, such as thermostats, have established successful “take back” programs for properly managing the products at the end of their useful life.
- k. A visible label on the product and/or its packaging increases effective consumer education, encourages informed purchasing, and bolsters participation in programs designed to separate, collect, and properly manage or recycle mercury-added products.
- l. Accidental mercury spills, breakages, and releases have occurred at schools throughout the Northeast. These incidences have proven costly to clean-up and have exposed students, teachers, and/or administrators to mercury emissions.

- m. Health care facilities, educational and research institutions, and businesses have also experienced significant employee exposures and incurred significant costs due to accidental mercury releases.
- n. State procurement of environmentally responsible products can improve the markets for those products, including low or non-mercury-added products and energy efficient products.
- o. The intent of this Act is to achieve significant reductions in environmental mercury by encouraging the establishment of effective state and local waste reduction, recycling, and management programs while continuing to spur economic development.

Section 3. Definitions

“Health care facility” means: any hospital, nursing home, extended care facility, long-term care facility, clinical or medical laboratory, state or private health or mental institution, clinic, physician’s office, or health maintenance organization.

“Formulated mercury-added product” means: a chemical product, including but not limited to laboratory chemicals, cleaning products, cosmetics, pharmaceuticals, and coating materials, that are sold as a consistent mixture of chemicals.

“Fabricated mercury-added product” means: a product that consists of a combination of individual components that combine to make a single unit, including but not limited to mercury-added measuring devices, lamps, and switches.

“Mercury-added product” means: a product, commodity, chemical, or a product with a component that contains mercury or a mercury compound intentionally added to the product, commodity, chemical, or component in order to provide a specific characteristic, appearance, or quality or to perform a specific function or for any other reason. These products include formulated mercury-added products and fabricated mercury-added products.

“Mercury fever thermometer” means: a mercury-added product that is used for measuring body temperature.

“Mercury-added novelty” means: a mercury-added product intended mainly for personal or household enjoyment or adornment. Mercury-added novelties include, but are not limited to, items intended for use as practical jokes, figurines, adornments, toys, games, cards, ornaments, yard statues and figures, candles, jewelry, holiday decorations, items of apparel (including footwear), or similar products.

“Manufacturer” means: any person, firm, association, partnership, corporation, governmental entity, organization, combination, or joint venture which produces a mercury-added product or an importer or domestic distributor of a mercury-added

product produced in a foreign country. In the case of a multi-component mercury-added product, the manufacturer is the last manufacturer to produce or assemble the product. If the multi-component product is produced in a foreign country, the manufacturer is the importer or domestic distributor.

Section 4. Interstate Clearinghouse

The [responsible administrative agency] is authorized to participate in the establishment and implementation of a regional, multi-state clearinghouse to assist in carrying out the requirements of this Act and to help coordinate reviews of the manufacturers' notifications regarding mercury-added products, applications for phase-out exemptions, the collection system plans, the disclosures of mercury content, applications for alternative labeling/notification systems, education and outreach activities, and any other related functions. The clearinghouse may also maintain a list of all products containing mercury, including mercury-added products; a file on all exemptions granted by the states; a file of all the manufacturers reports on the effectiveness of their collection systems; and a file of the certificates of analysis for certain products containing mercury used by health care facilities as defined in Section 12 of this Act.

Section 5. Notification

After six months from the effective date of this Act no mercury-added product shall be offered for final sale or use or distributed for promotional purposes in [jurisdiction] without prior notification in writing by the manufacturer of the product to the [responsible administrative agency] in accordance with the requirements of this section. Such notification shall at a minimum include:

- i A brief description of the product to be offered for sale, use, or distribution,
- ii The amount of and purpose for mercury in each unit of the product,
- iii The total amount of mercury contained in all products manufactured by the manufacturer,
- iv The name and address of the manufacturer, and the name, address and phone number of a contact.

Any mercury-added product for which federal law governs notice in a manner that preempts state authority shall be exempt from the requirements of this section.

c. With the approval of the [responsible administrative agency], the manufacturer may supply the information required above for a product category rather than an individual product. The manufacturer shall update and revise the information in the notification whenever there is significant change in the information or when requested by the [responsible administrative agency]. The [responsible administrative agency] may define and adopt specific requirements in accordance with [state administrative and public participation requirements] for the content and submission of the required notification.

Public disclosure of confidential business information submitted to the [responsible administrative agency] pursuant to this section shall be governed by the requirements of the [state's freedom of information act]. Notwithstanding the requirements of the [state's freedom of information act] the state may provide the interstate clearinghouse with copies of such information and the [responsible administrative agency] and the interstate clearinghouse may compile or publish analyses or summaries of such information provided that the analyses or summaries do not identify any manufacturer or reveal any confidential information.

Section 6. Restrictions on the Sale of Certain Mercury-added Products

No later than one year after the adoption of this Act no mercury-added novelty shall be offered for final sale or use or distributed for promotional purposes in [jurisdiction]. Manufacturers that produce and sell mercury-added novelties must notify retailers about the provisions of this product ban and how to dispose of the remaining inventory properly. The requirements of this section shall apply to all mercury-added novelties irrespective of whether or not the product is exempt from the phase-out requirements of section 7.

Six months after adoption of this Act, a person may not sell or supply mercury fever thermometers to consumers and patients, except by prescription. The manufacturers of mercury fever thermometers must, in addition to providing notice of mercury content and instructions on proper disposal, supply clear instructions on the careful handling of the thermometer to avoid breakage and on proper cleanup should a breakage occur. Mercury fever thermometer manufacturers must also comply with Section 5, 7, 8, 9, and 10 of this Act.

Within one year of the adoption of this Act, no school in [jurisdiction] may use or purchase for use in a primary or secondary classroom, bulk elemental or chemical mercury or mercury compounds. Manufacturers that produce and sell such materials must notify retailers about the provisions of this ban and how to dispose of the remaining inventory properly. Other mercury-added products that are used by schools are not subject to this prohibition.

No later than one year after the adoption of this Act no mercury dairy manometers shall be offered for final sale or use or distributed for promotional purposes in [jurisdiction]. Manufacturers that produce and sell mercury dairy manometers must notify retailers about the provisions of this product ban and how to dispose of the remaining inventory properly. The [responsible administrative agency] in consultation with the [jurisdiction's agriculture agency] shall examine the feasibility of implementing a collection and replacement program for dairy manometers.

Section 7. Phase-out and Exemptions

a. No mercury-added product shall be offered for final sale or use or distributed for promotional purposes in [jurisdiction] if the mercury content of the product exceeds:

(1) 1 gram (1000 milligrams) for mercury-added fabricated products or 250 parts per million (ppm) for mercury-added formulated products, effective two years from the date of this Act;

(2) 100 milligrams for mercury-added fabricated products or 50 parts per million (ppm) for mercury-added formulated products, effective four years from the date of this Act; and

(3) 10 milligrams for mercury-added fabricated products or 10 parts per million (ppm) for mercury-added formulated products, effective six years from the date of this Act.

b. For a product that contains one or more mercury-added products as a component, this section is applicable to each component part or parts and not to the entire product. For example if an iron has a mercury switch, the phase-out applies to the switch and not the entire iron.

c. For a product that contains more than one mercury-added products as a component, the phase out limits specified in subsection “a” apply to each component and not the sum of the mercury in all of the components. For example, a car can contain mercury-added switches and lighting-- the phase-out limits would apply to each component separately, and not the combined total of mercury in all of the components.

d. Fluorescent lamps shall be exempt from the requirements of subsection “a.” Eight years from the effective date of this Act the mercury content of fluorescent bulbs must either not exceed 10 milligrams or the manufacturer must comply with the exemption requirements pursuant to subsection (f).

e. A mercury-added product shall be exempt from the limits on total mercury content set forth in subsection “a” if the level of mercury or mercury compounds contained in the product are required in order to comply with federal or state health or safety requirements. In order to claim exemption under this section the manufacturer must notify, in writing, the [responsible administrative agency] and provide the legal justification for the claim of exemption.

f. (1) Manufacturers of a mercury-added product may apply to the [responsible administrative agency] for an exemption for no more than two years from the limits on total mercury content set forth in subsection “a” for a product or category of products.

(2) Applications for exemptions must: (1) document the basis for the requested exemption or renewal of exemption; (2) describe how the manufacturer will ensure that a system exists for the proper collection, transportation, and processing of the product(s) at

the end of their useful life; and (3) document the readiness of all necessary parties to perform as intended in the planned system.

The [responsible administrative agency] may grant with modifications or conditions an exemption for a product or category of products if: (a) it finds that a system exists for the proper collection, transportation, and processing of the mercury-added product. Such a system may include direct return of a waste product to the manufacturer or an industry or trade group supported collection and recycling system, or other similar private and public sector efforts; and (b) it finds each of the following criteria are met:

- i use of the product is beneficial to the environment or protective of public health or protective of public safety, and
- ii there is no technically feasible alternative to use of mercury in the product; and
- iii there is no comparable non-mercury-added product available at reasonable cost.

Prior to issuing an exemption the [responsible administrative agency] shall consult with neighboring states and provinces and regional organizations to promote consistency. The state shall avoid to the extent feasible inconsistencies in the implementation of this section. Upon re-application by the manufacturer and findings by the [responsible administrative agency] of continued eligibility under the criteria of this subsection and of compliance by the manufacturer with the conditions of its original approval, an exemption may be renewed one or more times and each renewal may be for a period of no longer than two years.

Section 8. Labeling of Mercury-Added Products

No mercury-added product manufactured after two years from the effective date of this Act shall be offered for final sale or use or distributed for promotional purposes in [jurisdiction] unless both the product and its packaging are labeled in accordance with this section, any adopted rules, or the terms of any approved alternative labeling or notification granted under subsection “h.” A retailer may not be found in violation of this subsection if the retailer lacked knowledge that the product contained mercury.

Where a mercury-added product is a component of another product, the product containing the component and the component must both be labeled. The label on a product containing a mercury-added component shall identify the component with sufficient detail so that it may be readily located for removal.

All labels must be clearly visible prior to sale and must inform the purchaser, using words or symbols, that mercury is present in the product and that the product should not be disposed of or placed in a waste stream destined for disposal until the mercury is removed and reused, recycled, or otherwise managed to ensure that the mercury in the product does not become mixed with other solid waste or wastewater.

Labels affixed to the product shall be constructed of materials that are sufficiently durable to remain legible for the useful life of the product.

After two years from the effective date of this Act, any person offering a mercury-added product for final sale or use or promotional purposes to an address in [jurisdiction] shall clearly advise the purchaser or recipient at the point of sale that the product contains mercury. This requirement applies to all transactions where the purchaser or recipient is unable to view the labels on the package or the product prior to purchase or receipt, including but not limited to catalogue, telephone, and Internet sales.

Responsibility for product and package labels required under this section shall be on the manufacturer, and not on the wholesaler or retailer unless the wholesaler or retailer agrees with the manufacturer to accept responsibility in conjunction with implementation of an alternative to the labeling requirements of this section approved under subsection “h.” In the case of a multi-component product the responsible manufacturer is the last manufacturer to produce or assemble the product or, if the multi-component product is produced in a foreign country, the responsible manufacturer is the importer or domestic distributor.

Labeling for Specific Products

- i Labeling of [large] appliances (commonly called white goods) sold in a store where the appliance is on display shall meet all requirements of this section except that no package labeling is required.
- ii Labeling of fever thermometers and button cell batteries shall meet all requirements of this section except that no product labeling is required.
- iii Labeling of motor vehicles shall meet all requirements of this section except that the mercury-added components are not required to be labeled. A doorpost label shall list the mercury-added components that may be present in the vehicle.

Alternative Methods of Public Notification

- i A manufacturer may apply to the [responsible administrative agency] for an alternative to the requirements of this section where: strict compliance with the requirements is not feasible; or the proposed alternative would be at least as effective in providing pre-sale notification of mercury content and in providing instructions on proper disposal; or federal law governs labeling in a manner that preempts state authority.
- ii Applications for an alternative to the requirements of this section must: (1) document the justification for the requested alternative; (2) describe how the alternative ensures that purchasers or recipients of mercury-added products are made aware of mercury content prior to purchase or receipt; (3) describe how a person discarding the product will be made aware of the need for proper handling to ensure that it does not become part of solid waste or wastewater; (4) document the readiness of all necessary parties to

implement the proposed alternative; and (5) describe the performance measures to be utilized by the manufacturer to demonstrate that the alternative is providing effective pre-sale notification and pre-disposal notification.

iii The [responsible administrative agency] may, grant, deny, modify, or condition a request for an alternative to the requirements of this section and approval of an alternative. Such waiver shall be for a period of no more than two years and may, upon continued eligibility under the criteria of this section and compliance with the conditions of its prior approval, be renewed at two-year intervals. Prior to approving an alternative, the [responsible administrative agency] shall consult with neighboring states, provinces and regional organizations to insure that its labeling requirements are consistent with those of other governments in the region.

Section 9. Disposal Ban and Proper Management of Mercury Scrap Metal Facilities

After two years from the effective date of this Act no person shall dispose of mercury-added products in a manner other than by recycling or disposal as hazardous waste. Mercury may not be discharged to water, wastewater treatment, and wastewater disposal systems except when it is done in compliance with local, state, and federal applicable requirements.

b. Mercury-added products may be disposed of in a properly approved by [the responsible administrative agency] hazardous waste disposal or recycling facility.

At a minimum, owners and operators of solid waste management facilities are required to implement the following mechanisms:

- i posting of signs at the facility providing notice of the prohibition of the disposal and incineration of mercury-added products;
- ii written notification to or contractual agreements with the facility's customers on a frequency determined by [the responsible administrative agency], providing notice of the prohibition on the disposal and incineration of mercury-added products; and
- iii implementation of a procedure approved by the appropriate state agency for periodically monitoring incoming wastes to detect the presence of mercury-added products at the facility.

A person may not crush a motor vehicle or shred an appliance unless the person has first made a good faith effort to remove all of the component mercury-added products.

If a formulated mercury-added product is a cosmetic or pharmaceutical product subject to the regulatory requirements relating to mercury of the Federal Food and Drug Administration, then the product is exempt from the requirements of this section.

Section 10. Collection of Mercury-Added Products

Within one year of the adoption of this Act, no mercury-added product shall be offered for final sale or use or distribution for promotional purposes in [jurisdiction] unless the manufacturer either on its own or in concert with other persons has submitted a plan for a convenient and accessible collection system for such products when the consumer is finished with them and such a plan has received approval of the [responsible administrative agency]. Where a mercury-added product is a component of another product, the collection system must provide for removal and collection of the mercury-added component or collection of both the mercury-added component and the product containing it.

The collection system plan shall include the following elements:

- i a public education program to inform the public about the purpose of the collection program and how to participate in it;
- ii a targeted capture rate for the mercury-added products or components;
- iii a plan for implementing and financing the collection system;
- iv documentation of the willingness of all necessary parties to implement the proposed collection system;
- v a description of the performance measures to be utilized and reported by the manufacturer to demonstrate that the collection system is meeting capture rate targets and other measures of program effectiveness as required by the [responsible administrative agency]; and
- vi a description of additional or alternative actions that will be implemented to improve the collection system and its operation in the event that the program targets are not met.

In developing a collection system plan, manufacturers are encouraged to utilize or expand on existing collection and recycling infrastructure where feasible and cost-effective. In the event that the manufacturer has elected not to utilize existing local collection and recycling infrastructure, the manufacturer shall include in its collection system plan the reasons for its decision to establish a separate collection system.

Within a year of the state approval of the collection system plan, the manufacturer or entity that submitted the plan on behalf of the manufacturer shall ensure that a convenient and accessible recovery system for the users of those products is in full operation.

Two years following the implementation of the collection system plan required under this section and biennially thereafter, the manufacturer or entity that submitted the plan on behalf of the manufacturer shall be required to submit a report on the effectiveness of the collection system. The report shall include an estimate of the amount of mercury that was collected, the capture rate for the mercury-added products or components, the results

of the other performance measures included in the manufacturers collection system plan, and such other information as the [responsible administrative agency] may require. Such reports shall be made available to the public by the [responsible administrative agency].

The cost for the collection system must be borne by the manufacturer or manufacturers of mercury-added products. Manufacturers may include the cost of the collection system in the price of the product and may not assess a separate fee for the use of the collection system.

The [responsible administrative agency] shall review the regulatory framework governing handling of waste from mercury-added products and may revise, if necessary, its rules as appropriate to facilitate collection.

Mercury-added formulated products intended to be totally consumed in use, such as reagents, cosmetics, pharmaceuticals, and other laboratory chemicals, shall be exempt from the requirements of this section.

Section 11. Universal Waste Rule

The [responsible administrative agency] shall [adopt or modify] its rules governing universal hazardous waste as appropriate to promote the recycling, recovery, and proper management of elemental mercury and mercury-added products on a statewide and regional basis.

Section 12. Disclosure for Mercury-Containing Formulated Products That Are Used in Health Care Facilities

Within one year of the effective date of this Act, the manufacturers of formulated products that contain mercury or a mercury compound from any source or cause, whether intended or unintended, and are offered for sale or use to a health care facility in [jurisdiction] must provide both the [responsible administrative agency] and the recipient health care facility a Certificate of Analysis documenting the mercury content of the product, down to a 1 part per billion level. Such formulated products include, but are not limited to: acids; alkalies; bleach (sodium hypochlorite); materials used for cleaning, in maintenance, or for disinfection; pharmaceutical products; stains; reagents; preservatives; fixatives; buffers; and dyes.

The Certificate of Analysis (COA) must report the result of an analysis performed for mercury on the specific batch or lot of that product offered for sale. The batch or lot number of the product shall be clearly identified on the product and on the COA.

c. Upon receipt of the COA, the [responsible administrative agency] may review the data, in consultation with the manufacturer and take appropriate action.

Section 13. Limitations on the Use of Elemental Mercury

Within one year of adoption of this Act, no person may sell or provide elemental mercury to another person in [jurisdiction] without providing a Material Safety Data Sheet, as defined in the United States Code, Title 42, Section 11049, and requiring the purchaser or recipient to sign a statement that the purchaser:

- i will use the mercury only for medical, dental amalgam dispose-caps, research, or manufacturing purposes;
- ii understands that mercury is toxic and that the purchaser will store and use it appropriately so that no person is exposed to the mercury; and
- iii will not place or allow anyone under the purchaser's control to place or cause to be placed the mercury in solid waste for disposal or in a wastewater treatment and disposal system.

Section 14. Existing Inventories

Those mercury-added products with a code or date of manufacture indicating they were manufactured prior to the effective date of this Act are exempt from Sections 6, 7, 8, 10, and 12. If the mercury-added product has a date of manufacture or the manufacturer can provide documentation that the product in question was manufactured prior to the effective date, it is exempt from the above listed sections. Situations that are beyond the control of the manufacturer, such as old stock being held by retailers, should be addressed on a case-by-case basis.

Section 15. Public Education and Outreach

The [responsible administrative agency] shall implement a comprehensive public education, outreach, and assistance program for households, hazardous waste generators, local and regional solid waste management agencies, small businesses, health care facilities, scrap metal facilities, dismantlers, institutions, schools, and other interested groups in concert with other relevant state agencies. This public education, outreach, and assistance program should focus on the hazards of mercury; the requirements and obligations of individuals, manufacturers, and agencies under this law; and voluntary efforts that individuals, institutions, and businesses can undertake to help further reduce mercury in the environment. The [responsible administrative agency] shall cooperate with manufacturers of mercury-added products and other affected businesses in the development and implementation of public education and technical assistance programs.

The [responsible administrative agency] shall cooperate with the neighboring states and provinces and regional organizations in the Northeastern U.S. and Canada on developing outreach, assistance, and education programs, where appropriate.

The [responsible administrative agency] may develop an awards program to recognize the accomplishments of manufacturers, municipalities, solid waste management facilities, solid waste recycling facilities, household hazardous waste collection facilities, citizens,

or others who go beyond the minimum requirements in this legislation and excel at reducing or eliminating mercury in air emissions, solid waste, and wastewater discharges.

To facilitate compliance with the disposal ban, the [responsible administrative agency] shall prepare and publish best management practice guidelines for dental offices and laboratories.

Section 16. State Procurement Preferences for Low or Non-mercury-added Products

Notwithstanding other policies and guidelines for the procurement of equipment, supplies, and other products, the [state procurement administrator] shall, within 1 year of the effective date of this section, revise its policies, rules and procedures to implement the purposes of this Act.

The [state procurement administrator] shall give priority and preference to the purchase of equipment, supplies, and other products that contain no mercury-added compounds or components, unless there is no economically feasible non-mercury-added alternative that performs a similar function. In circumstances where a non-mercury-added product is not available, preference shall be given to the purchase of products that contain the least amount of mercury-added to the product necessary for the required performance.

i The [state procurement administrator] is authorized to give a price preference of up to ____ percent for products that contain no mercury or less mercury.

ii This priority and preference shall apply to all state purchases, as well as any purchases made by others with state funds;

iii With respect to lighting, energy efficient lamps for lighting purposes shall be purchased in preference to other less efficient lighting options. To the maximum extent possible, purchases shall be restricted to lights that contain the lowest total mercury content per lumen hour available. Spent bulbs shall be recycled to the maximum extent feasible.

iv The procurement agent shall specify non-mercury or reduced mercury-added products, as applicable, in procurement bid documents.

c. State dental insurance contracts negotiated after the effective date of this Act shall provide equal coverage for non-mercury fillings and mercury amalgam fillings at no additional expense to the state employee.

Section 17. Enforcement

A violation of any of the provisions of this law or any rule or regulation promulgated pursuant thereto shall be punishable in the case of a first violation, by a civil penalty not

to exceed ____ dollars. In the case of a second and any further violation, the liability shall be for a civil penalty not to exceed _____ dollars for each violation.

[Each state may add additional enforcement provisions.]

Section 18. Public Notification and Review

[Each state to add its own Public Notification and Review Provisions.]

Section 19. State Review

The [responsible administrative agency] shall, in consultation, with the Conference of the New England Governors/Eastern Canadian Premiers Environment Committee, review the effectiveness of this Act no later than 4 years after its adoption and may provide a report based upon that review to the Governor and the legislature. The report shall review the effectiveness of the programs required under the Act and may contain recommendations for improving them. As part of this review, the state [responsible administrative agency] shall evaluate the effectiveness of the collection systems established under this Act and determine whether additional state authority or targeted capture rates are needed to improve those systems. In addition through this review process, the [responsible administrative agency] shall evaluate the need for additional incentives for manufacturers of mercury-added products that are below 10 milligrams to reduce the amount of mercury in those products.

Section 20. Severability Clause

[Each state to add its own severability clause.]

Section 21. Effective Date

This Act shall become effective immediately upon adoption.

Section 22. Administrative Fees and Regulations

The [responsible administrative agency] may impose fees sufficient to cover the costs of administering the provisions of this Act. The [responsible administrative agency] may adopt regulations to implement the provisions of this Act consistent with the policies and purposes of this Act.

Section 23. Appropriations

[Each state to add its own appropriations provisions.]

APPENDIX D – MERCURY AND PRODUCTS THAT CONTAIN MERCURY ACT

The Environment Article, Title 6, Subtitle 9, Annotated Code of Maryland

Subtitle 9. Mercuric Oxide Batteries.

§ 6-901. Disposal and recycling.

(a) *In general.* — On or after July 1, 1994, a person may not dispose of a mercuric oxide battery except in a manner that the Department approves under regulations adopted by the Department.

(b) *Joint plans.* — Any 2 or more manufacturers may develop a joint plan for recycling or disposal of any specified mercuric oxide battery that they manufacture.

(c) *Duty of manufacturer; sales to refiners.* — (1) A manufacturer shall be responsible for the environmentally sound collection, transportation, and recycling or proper disposal, including the cost of these activities, of every used mercuric oxide battery produced by the manufacturer and sold or offered for promotional purposes in the State.

(2) Notwithstanding paragraph (1) of this subsection, a retailer or seller may provide for the collection, recycling, or proper disposal of used mercuric oxide batteries through the sale to a refiner or a refiner's agent if the retailer or seller complies with any requirement established by the Department to implement this section.

(d) *Trade association or consortium to facilitate compliance.* — Manufacturers may establish or utilize a trade association or a consortium comprised of members of the dry cell battery industry in order to facilitate compliance with the requirements of this section.

(e) *Consultation with Office of Recycling.* — A manufacturer shall consult with the Office of Recycling in developing its plan.

(f) *Contents of management plans.* — Each battery management plan submitted by a manufacturer shall include:

(1) The designation of the collector, transporter, processor, or collection system to be utilized by the manufacturer, or by the county or municipal corporation, institutional generator, retailer or small quantity generator on behalf of the manufacturer, for the collection, transportation, and recycling or proper disposal of used mercuric oxide batteries in each county;

(2) The designation of the funding source or mechanism to be used by the manufacturer to defray the costs of implementing the battery management plan; and

(3) A strategy for informing consumers, on any store display promoting the sale or use of the batteries the manufacturer manufactures, that these types of used dry cell batteries may not enter the solid waste stream, and that a convenient mechanism for the collection, transportation, and recycling or proper disposal of these types of used batteries is available to the consumer. (1992, ch. 442; 1993, ch. 450.)

§ 6-902. Sale, distribution, or offer for sale.

A person may not sell, distribute, or offer for sale in this State a mercuric oxide battery unless:

(1) The person is a party to a plan approved by the Department under § 6-901 of this subtitle; or

(2) A retailer or seller has provided for the collection, recycling, or proper disposal of used mercuric oxide batteries through the sale to a refiner or a refiner's agent and the retailer or seller has complied with any requirement established by the Department to implement § 6-901 of this subtitle. (1993, ch. 450.)

Editor's note. — Section 1, ch. 450, Acts 1993, transferred former § 6-902 of this article to be § 6-903 of this article, and enacted a new § 6-902.

Section 2 of ch. 450 provides that the act shall take effect July 1, 1994.

§ 6-903

ANNOTATED CODE OF MARYLAND

§ 6-903. Penalties.

A person who violates any provision of this subtitle is guilty of a misdemeanor and on conviction is subject to a fine not exceeding \$100 for each violation. (1992, ch. 442; 1993, ch. 450.)

Editor's note. — Section 1, ch. 450, Acts 1993, transferred former § 6-902 of this article to be § 6-903 of this article.

Supplement 2003

Subtitle 9. Mercury.

Part I. Mercuric Oxide Batteries.

§ 6-901. Disposal and recycling.

Effect of amendments. — Chapter 639, Acts 2001, effective Oct. 1, 2001, reenacted the section without change. Chapter 639 also substituted “Mercury” for “Mercuric Oxide Batter-

ies” in the Subtitle 9 heading and added the Part I heading “Mercuric Oxide Batteries” preceding this section.

§ 6-902. Sale, distribution, or offer for sale.

Effect of amendments. — Chapter 639, Acts 2001, effective Oct. 1, 2001, reenacted the section without change.

§ 6-903. Penalties.

Effect of amendments. — Chapter 639, Acts 2001, effective Oct. 1, 2001, reenacted the section without change.

Part II. Mercury and Products That Contain Mercury.

§ 6-904. Findings.

The General Assembly finds that:

- (1) Mercury is a persistent and toxic pollutant that bioaccumulates in the environment;
- (2) Consumption of mercury-contaminated fish poses a significant health threat;
- (3) Combustion of municipal and other solid waste is a source of mercury pollution;
- (4) Both industry and government are working to reduce the content of mercury in products and to control the release of mercury into the environment;
- (5) Accidental mercury spills, breakages, and releases have occurred at schools in the United States, exposing students, teachers, and administrators to mercury emissions; and
- (6) Removal of mercury and mercury containing products from the waste stream prior to combustion or disposal is an effective way to reduce mercury pollution. (2001, ch. 639.)

Editor's note. — Section 2, ch. 639, Acts 2001, provides:

"(a) The Department of the Environment shall report to the Governor, the Senate Economic and Environmental Affairs Committee [now Senate Education, Health, and Environmental Affairs Committee], and the House Environmental Matters Committee on or before October 1 in 2002, 2003, and 2004 in accordance with § 2-1246 of the State Government Article.

"(b) The reports required under this section shall:

"(1) review the effectiveness of this Act;

"(2) report on legislation enacted in other states to require labeling of mercury and products that contain mercury and to specifically regulate mercury and products containing mercury in the waste stream; and

"(3) make any recommendations for changes to this Act to improve efforts to reduce the use of mercury and the incidence of mercury in the waste stream.

"(c) The report required to be submitted on or before October 1, 2003 in this section shall also:

"(1) include information regarding the products, processes, and components of products and processes that contain mercury and are likely to be disposed of in wastewater, landfills, or incinerators;

"(2) denominate the contribution of the various sources of mercury in each disposal method; and

"(3) recommend priorities for the regulation of use and disposal of each source of mercury in order to minimize mercury contamination in the environment."

Section 3, ch. 639, Acts 2001, provides that "the Children's Environmental Health and Protection Advisory Council shall, by October 1, 2002:

"(a) conduct a survey of primary and secondary schools in the State that are regulated under § 6-906 of the Environment Article as enacted by this Act to determine how many

schools have elemental or chemical mercury that will be prohibited for use under this Act; and

"(b) report to the Department of the Environment, the Governor, and, subject to § 2-1246 of the State Government Article, the General Assembly on:

"(1) the number and location of primary and secondary schools in the State that are

regulated under this Act that have elemental or chemical mercury; and

"(2) any recommendations to create a program to collect the mercury from these schools and dispose of it in accordance with regulations adopted by the Department of the Environment."

Section 4, ch. 639 Acts 2001, provides that this part shall take effect Oct. 1, 2001.

§ 6-905. Definition; prohibition of selling or providing a mercury fever thermometer without prescription; applicability.

(a) *"Marketer" defined.* — In this section, "marketer" means a person who manufactures, assembles, sells, distributes, affixes a brand name or private label to, or licenses the use of a brand name on a fever thermometer containing mercury.

(b) *Prohibition.* — Beginning October 1, 2002, a marketer may not sell or provide a fever thermometer containing mercury to a consumer except by prescription.

(c) *Applicability.* — This section does not apply to:

(1) Fever thermometers sold or provided to be used in hospitals or other places where medical services are provided by medical service professionals; or

(2) Digital thermometers using mercury-added button cell batteries. (2001, ch. 639.)

§ 6-906. Use of elemental or chemical mercury in schools.

(a) *Prohibition; exceptions.* — Beginning October 1, 2003, no primary or secondary school, except for a school engaged in vocational training, may use or purchase for use elemental or chemical mercury in a primary or secondary classroom.

(b) *Outreach assistance.* — The Department shall provide outreach assistance to schools relating to the proper management, recycling, and disposal of mercury and mercury-added products. (2001, ch. 639.)

§ 6-907. Public education, outreach and assistance program.

(a) *Implementation.* — The Department shall implement a public education, outreach, and assistance program relating to:

(1) The hazards of mercury;

(2) The requirements of this subtitle; and

(3) Voluntary efforts that individuals, institutions, and businesses can undertake to help further reduce mercury in the environment.

(b) *Cooperation.* — The Department shall cooperate with neighboring states and regional organizations in the mid-Atlantic and northeastern United States on developing outreach, assistance, and education programs, where appropriate. (2001, ch. 639.)

Editor's note. — See Editor's note under
§ 6-904 of this article.